

Title (en)

Apparatus and methods to monitor and control cyclic process units in a steady plant environment

Title (de)

Vorrichtung und Verfahren zur Überwachung und Steuerung zyklischer Verarbeitungseinheiten in einer stationären Anlagenumgebung

Title (fr)

Appareil et procédés pour surveiller et contrôler des unités de processus cyclique dans un environnement industriel stable

Publication

**EP 2746884 B1 20150415 (EN)**

Application

**EP 12199361 A 20121224**

Priority

EP 12199361 A 20121224

Abstract (en)

[origin: EP2746884A1] Apparatus and methods are disclosed that allow for the monitoring and analysis of production process data for a multi-step asynchronous cyclic production process (e.g. pressure swing adsorption) in a steady state plant (such as a steam methane reforming plant). Data collected from cooperating sensors is processed applying a moving window discrete Fourier transform (DFT). The transformed data can be further analyzed in the broader steady-state plant environment to accurately detect any process anomalies and avoid false alarms.

IPC 8 full level

**G05B 23/02** (2006.01); **B01D 53/02** (2006.01)

CPC (source: EP US)

**B01D 53/02** (2013.01 - US); **G05B 23/0221** (2013.01 - EP US); **G05B 2219/37513** (2013.01 - EP US)

Cited by

US10994240B2; GB2545302A; GB2545302B; IT201700048962A1; RU2679749C2; US10913905B2; US10663238B2; US11130111B2; US11396002B2; WO2019055993A1; US10695711B2; US10844290B2; US10670353B2; US10678272B2; US10503483B2; US10866952B2; US10901403B2; US11194317B2; US10296668B2; US11385608B2; US11676061B2; US10282676B2; US10656627B2; US10678225B2; US10962302B2; US10037303B2; US10223327B2; US10311015B2; US11105787B2; US10752844B2; US10839115B2; US11037376B2; US11365886B2; US10739798B2; US10752845B2; US10909137B2; US10649424B2; US10953377B2; US11886155B2; US10386827B2; US10649449B2; US10670027B2; US10734098B2; US10754359B2; US11022963B2; US11130692B2; US10031489B2; US10031490B2; US10133243B2; US10152031B2; US10168691B2; US10324423B2; US10551799B2; US10649412B2; US10649413B2; US10671028B2; US10691281B2; US10794644B2; US11112925B2; US11169651B2; US11573672B2

Designated contracting state (EPC)

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DOCDB simple family (publication)

**EP 2746884 A1 20140625**; **EP 2746884 B1 20150415**; CA 2837961 A1 20140624; CA 2837961 C 20160405; CN 103901835 A 20140702; CN 103901835 B 20170301; ES 2541277 T3 20150717; US 2014174288 A1 20140626; US 8882883 B2 20141111

DOCDB simple family (application)

**EP 12199361 A 20121224**; CA 2837961 A 20131220; CN 201310720006 A 20131224; ES 12199361 T 20121224; US 201313737323 A 20130109